

**AMENDMENT TO CLAIMS:**

This listing of claims will replace all prior versions, and listings, of claims in the application.

**Listing of Claims:**

1. (Currently amended) A response characteristic estimation apparatus, including:  
an input unit which inputs a received signal;  
a correlation processor which performs a correlation processing between the received signal which has been inputted and a known transmission signal;  
a phase error estimator which estimates a phase error of the received signal, which has been inputted, during a period of time in which the correlation processor is performing its process, and in parallel with the processing in the correlation processor to the known transmission signal based on the received signal which has been inputted and the known transmission signal; and a phase error compensator which estimates, when the processing in the correlation processor ends, response characteristic of the received signal, which has been inputted, to the known transmission signal by compensating a result of the correlation processing based on the estimated phase error.
2. (Original) A response characteristic estimation apparatus according to Claim 1, wherein the known transmission signal is included in a prescribed interval in the received signal in a sequential manner, and wherein the apparatus further includes a controller which detects an end of the sequential interval of the known transmission signal from the received signal which

has been inputted, and the phase error compensator compensates the result of the correlation processing based on the estimated phase error at the detected end.

3. (Currently amended) A response characteristic estimation method, including:  
inputting a received signal;  
performing a correlation processing between the received signal which has been inputted and a known transmission signal;  
estimating a phase error of the received signal, which has been inputted, during a period of time in which the correlation processing is being performed, and in parallel with the correlation processing to the known transmission signal based on the received signal which has been inputted and the known transmission signal; and  
estimating, when the correlation processing ends, response characteristic of the received signal, which has been inputted, to the known transmission signal by compensating a result of the correlation processing based on the estimated phase error.

4. (Original) A response characteristic estimation method according to claim 3, wherein the known transmission signal is included in a prescribed interval in the received signal in a sequential manner, and wherein the method further includes detecting an end of the sequential interval of the known transmission signal from the received signal which has been inputted, and in estimating the response characteristic of the received signal, which has been inputted, to the known transmission signal, the result of the correlation processing is compensated based on the estimated phase error at the detected end.

5. (Currently amended) A recording medium which stores thereon a computer program executable by a computer, including modules for:

- inputting a received signal;
- performing a correlation processing between the received signal which has been inputted and a known transmission signal;
- estimating a phase error of the received signal, which has been inputted, during a period of time in which the correlation processing is being performed, and in parallel with the correlation processing to the known transmission signal based on the received signal which has been inputted and the known transmission signal; and
- estimating, when the correlation processing ends, response characteristic of the received signal, which has been inputted, to the known transmission signal by compensating a result of the correlation processing based on the estimated phase error.

6. (Currently amended) A The recording medium ~~computer program~~ according to claim 5, wherein the known transmission signal is included in a prescribed interval in the received signal in a sequential manner, and wherein the program stored in the recording medium further includes detecting an end of the sequential interval of the known transmission signal from the received signal which has been inputted, and in estimating the response characteristic of the received signal, which has been inputted, to the known transmission signal, the result of the correlation processing is compensated based on the estimated phase error at the detected end.

7. (Currently amended) A receiver, including:

- an input unit which inputs a plurality of received signals respectively;

a correlation processor which performs correlation processings respectively between each of the plurality of received signals which have been inputted and a known transmission signal;

a phase error estimator which estimates a phase error of at least one of the plurality of received signals, which have been inputted, during a period of time in which the correlation processor is performing its process, and in parallel with the processing in the correlation processor to the known transmission signal based on at least one of the plurality of received signals, which have been inputted, and the known transmission signal;

a phase error compensator which generates, when the processing in the correlation processor ends, a plurality of weighting coefficients by compensating respectively a plurality of results of the correlation processings based on the estimated phase error; and

a synthesizing unit which performs multiplications in a manner that the plurality of received signals which have been inputted respectively correspond to the plurality of weighting coefficients and synthesizes results of the multiplications.

8. (Currently amended) A receiver according to claim 7, wherein the phase error estimator estimates a conclusive phase error again by respectively estimating the phase error of each of the plurality of received signals, which have been inputted, to the known transmission signal based on the plurality of received signals, which have been inputted via a plurality of antennas, and the known transmission signal and by averaging the estimated plurality of phase errors.

9. (Original) A receiver according to claim 7, wherein the known transmission signal is included in a prescribed interval of the received signal in a sequential manner, and wherein the receiver further includes a controller which detects an end of the sequential interval

of the known transmission signal from the plurality of received signals which have been inputted, and the phase error compensator respectively compensates the plurality of results of the correlation proceedings based on the estimated phase errors at the detected end.

10. (Currently amended) A receiving method, including:
- inputting a plurality of received signals respectively;
  - performing correlation processings respectively between each of the plurality of received signals which have been inputted and a known transmission signal;
  - estimating a phase error of at least one of the plurality of received signals, which have been inputted, during a period of time in which the correlation processing is being performed, and in parallel with the correlation processing ~~to the known transmission signal based on at least one of the plurality of received signals, which have been inputted, and the known transmission signal;~~
  - generating, when the correlation processing ends, a plurality of weighting coefficients by compensating respectively a plurality of results of the correlation processings based on the estimated phase error; and
  - synthesizing results of multiplications, wherein the multiplications are performed in a manner that the plurality of received signals which have been inputted respectively correspond to the plurality of weighting coefficients.

11. (Currently amended) A receiving method according to claim 10, wherein, in estimating the phase error of at least one of the plurality of received signals, which have been inputted, to the known transmission signal, a conclusive phase error is estimated again by respectively estimating the phase error of each of the plurality of received signals, which have

been inputted, to the known transmission signal based on the plurality of received signals which have been inputted via a plurality of antennas and the known transmission signal and by averaging the estimated plurality of phase errors.

12. (Original) A receiving method according to claim 10, wherein the known transmission signal is included in a prescribed interval of the received signal in a sequential manner, and wherein the method further includes detecting an end of the sequential interval of the known transmission signal from the plurality of received signals which have been inputted and in generating the plurality of weighting coefficients, the plurality of results of the correlation processings are is respectively compensated based on the estimated phase errors at the detected end.

13. (Currently amended) A recording medium which stores thereon a program executable by a computer, including modules for: inputting a plurality of received signals respectively; performing correlation processings respectively between each of the plurality of received signals which have been inputted and a known transmission signal;

estimating a phase error of at least one of the plurality of received signals, which have been inputted, during a period of time in which the correlation processing is being performed, and in parallel with the correlation processing to the known transmission signal based on at least one of the plurality of received signals, which have been inputted, and the known transmission signal;

generating, when the correlation processing ends, a plurality of weighting coefficients by compensating respectively a plurality of results of the correlation processings based on the estimated phase error; and

synthesizing results of multiplications, wherein the multiplications are performed in a manner that the plurality of received signals which have been inputted respectively correspond to the plurality of weighting coefficients.

14. (Currently amended) ~~A~~ The recording medium program according to claim 13, wherein, in estimating the phase error of at least one of the plurality of received signals, which have been inputted, to the known transmission signal, a conclusive phase error is estimated again by respectively estimating the phase error of each of the plurality of received signals, which have been inputted, to the known transmission signal based on the plurality of received signals which have been inputted via a plurality of antennas and the known transmission signal and by averaging the estimated plurality of phase errors.

15. (Currently amended) ~~A~~ The recording medium program according to claim 13, wherein the known transmission signal is included in a prescribed interval of the received signal in a sequential manner, and wherein the program stored in the recording medium further includes detecting an end of the sequential interval of the known transmission signal from the plurality of received signals which have been inputted and, in generating the plurality of weighting coefficients, the plurality of results of the correlation processings are is respectively compensated based on the estimated phase errors at the detected end.